Sumit Kumar Ghosh

Computer Science Undergrad, IIT Delhi sumit@sumit-ghosh.com

Experience

Department of Computer Science, IIT Delhi

SysAdmin (System Administrator) • Nov, 2017 — Present

Responsible for the upkeep, configuration, and reliable operation of computer systems and servers of IIT Delhi's Computer Science Department.

Upwork

Freelance Consultant and Programmer • Jan, 2016 — Present

- Worked on 30+ small to largely sized contracts
- Out of 23 feedbacks, 17 are 5-star. Average feedback - 4.74
- Job satisfaction score - 86%

Education

Indian Institute of Technology (IIT) Delhi

B.Tech and M.Tech, Computer Science and Engineering • 2016 — Present

- Was among the top 0.075 percentile in the entrance exam (JEE)
- Cumulative GPA of 7.0

Bidhan Chandra Institution, Durgapur

Higher Secondary (WBCHSE) (Standard 12) • 2014 — 2026

- 90% marks in the finals.

Ramakrishna Mission Vidyapith, Purulia

Secondary (WBBSE) (Standard 10) • 2008 — 2014

- 92% marks in the finals.

Relevant Courses Done

Introduction to Computer Science, Data Structures and Algorithms, Algorithms, Part 1 by Princeton University^, Digital Logic and System Design, Computer Architecture*, Programming Languages*, Principles of Electronic Materials, Signals and Systems*, Discrete Mathematical Structures, Linear Algebra and Differential Equations,, Introduction to Calculus, Design Practices*

*Will be completed by Summer 2018
^Online course (MOOC)

Projects

Super1337-CTF

Djnago, Hacking • June — October, 2017

A site for hosting CTF contests. Comes with a complete scoring and leaderboards system.

PearSend

Python, Sockets • December, 2017

A simple CLI client for peer-to-peer file or message sending. It supports protection against transmission error using CRC32 checksum, and comes with CLI (command-line argument) and interactive mode both.

Compiler and Programming Language Design

Prof. Sanjiva Prasad • Compiler, Programming Languages, OCaml • January — April, 2018

Designing a programming language, complete with its compiler (written in OCaml). Various aspects of programming Languages theory were explored through this project.

deCAD

Prof. Subhashis Banerjee • C++, QT • January — April, 2018

deCAD is a software package for basic computer-aided engineering drawing. Complete with a GUI interface, it provides easy conversion from 2D projections to 3D model and vice-versa.

Designing an ARM Processor

Prof. Anshul Kumar • CPU, Processor Design, VHDL • January — April, 2018

Designing a complete ARM CPU using VHDL. Best practices of processor design are being implemented in this project, such as dividing the CPU into datapath and controller, pipelining, etc.

Journalist

Python, Github API • January, 2017

App to write journal digitally. It lets you write your journal using Markdown in your favorite text-editor, stores written journals in a comprehensive directory structure and lets you view the journals (Markdown rendered in HTML) in browser.

Insightous

Machine Learning, Twitter API • January, 2017

Get someone's personality insights from their Twitter timeline! This app uses various machine learning techniques to analyse someone's timeline and their tweets.

Data Structures and Algorithms Projects

Prof. Mausam & Prof. Sedgewick • Java • July — November, 2017

- **8-Puzzle Solver** — Finds the most cost-effective way to solve a given 8-puzzle. Implemented using Djikstra's and A-star algorithms.
- **Image Compression System** — Encode a given monochrome image in a compact format and perform operations like Inversion and Morphing on that.
- **Percolation Simulator** — Implemented using Union-Find data structure, it simulates percolation behavior of fluids.

Digital System Design in VHDL

Prof. Anshul Kumar • VHDL, Xilinx Vivado • August — November, 2017

- **Implementation of UART** — Implemented a fully-functioning UART (Universal Asynchronous Receiver-Transmitter) on FPGA board that helped communication between a computer and the FPGA through USB.
- **Elevator System** — Implemented on the FPGA board using VHDL, it consisted of a model of two lifts spanning over 4 floors.

Skills

- **Programming Languages - Python, Java, c, C++, Ocaml, VHDL, ARM Assembly** : Programming proficiently in the above mentioned languages
- **Browser automation | Automated software-testing and Quality Assurance** : Using QA frameworks like Selenium and Appium to automate software-testing
- **Web Scraping** : Scraping data from the web using libraries like requests and lxml or powerful frameworks like Scrapy
- **Web Development using Django** : Back-end Web Development using Django. Basic front-end designing using Bootstrap and Javascript.
- **System Administration and DevOps** : Using containerization (Docker) and process management systems (Supervisord). Configuring and managing web-servers (Apache2 and Nginx), implementing reverse proxy and load balancers in such.

Associations

Dev Club IIT Delhi

Member • 2017 — Present